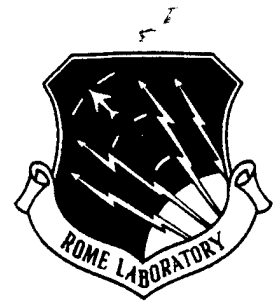


RL-TR-96-288
Final Technical Report
April 1997



AFSPC SATCOM/C2

Sterling Software

Vince Castello

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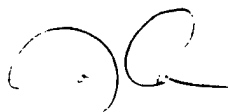
RL-TR-96-288 has been reviewed and is approved for publication.

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REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
<small>Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.</small>				
1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE April 1997	3. REPORT TYPE AND DATES COVERED Final Aug 95 - Sep 96		
4. TITLE AND SUBTITLE AFSPC SATCOM/C2		5. FUNDING NUMBERS C - F30602-94-D-0007 T/11 PE - 31335F PR - 2183 TA - QJ WU - 18		
6. AUTHOR(S) Vince Castello				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Prime: Sterling Software Information Technology Division Beeches Technical Campus Rome, NY 13440 Sub: Information Technology & Applications 1875 Campus Commons Drive, Suite 300 Reston, VA 22091		8. PERFORMING ORGANIZATION REPORT NUMBER N/A		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) Rome Laboratory/IRDO 32 Hangar Road Rome, NY 13441-4114		10. SPONSORING/MONITORING AGENCY REPORT NUMBER RL-TR-96-288		
11. SUPPLEMENTARY NOTES Rome Laboratory Project Engineer: Anthony R. Macera/IRDO/(315) 330-2321				
12a. DISTRIBUTION AVAILABILITY STATEMENT Approved for Public Release; Distribution Unlimited		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) <p>This report summarizes the work conducted under the AFSPC SATCOM//C2 effort. The objective of the task was to improve upon the Satellite Planning Tool (SPT) software program, previously developed.</p> <p>Also, the C2 Protect Task was to provide USSPACECOM and AFSPC support for the tailoring and manipulation of the automated risk management software, RISKWATCH, to the specific needs of the commands overall, and each major staff section within them.</p>				
14. SUBJECT TERMS Satellite Planning Tool (SPT), RISKWATCH, C2 Protect, Risk Management		15. NUMBER OF PAGES 12		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED	20. LIMITATION OF ABSTRACT UL	

FOREWORD

This Final Technical Report was prepared entirely by Information Technology and Applications Corporation (ITAC) for the Information Technology Division of Sterling Software, in response to Contract F30602-94-D-0007, Task 0011.

1.0 INTRODUCTION

The purpose of this final technical report is to summarize the activities of the SATCOM/C2 effort under Task Order Agreement number F30602-94-D-0007. There were two separate tasks under this contract. Task one was called the SATCOM task and task two was for the C2/Protect task. The period of performance for this effort was from 24 August 1995 to 30 September 1996.

The fundamental purpose of the AFSPC SATCOM task was to improve upon the Satellite Planning Tool (SPT) software program, previously developed by ITAC for the Air Force Satellite Communications Group AFSPACECOM/SCZ. Improvements consisted of software anomaly fixes for a set of observed errors in the SPT 2.0 baseline and various enhancements requested by the AFSPACECOM/SCZ customer. The software was modified in two phases during the course of the contract: Build One and Build Two.

The basic purpose of the C2 Protect task was to provide USSPACECOM and AFSPC support for the tailoring and manipulation of the automated risk management software, RISKWATCH, to the specific needs of the commands overall and each major staff section within them. Assessment results were compiled, briefed to the senior leadership, and utilized to (1) tailor the risk management software; (2) produce C2 Protect survey disks for mass distribution; (3) assemble the results of the C2 Protect automated surveys; (4) compare the survey results and assessment team reports to existing regulations, procedures, and policies; (5) assess risk; (6) develop cost-effective countermeasures to mitigate risk; (7) prepare and deliver risk mitigation decision brief to senior leadership; (8) effect risk mitigating countermeasures.

This report was been prepared by Mr. Vince Castello. Any questions concerning this report shall be directed to Mr. Castello at 703-391-8822.

2.0 SUMMARY OF TASK EFFORTS

2.1 TASK ONE - SPT 3.0 ENHANCEMENTS

As mentioned above, the SPT 3.0 upgrade was developed in two builds based upon the Statement of Work and Attachment 1, AFSPC Tech note, in the subcontract. Build One was completed and installed on the AFSPC/SCZ computers on 18 January 1996, with the Build One User Manual following on 26 January. Build One contained all of the agreed upon changes for this build with the exception of the deletion of the full map display for the Mercator projection and the inclusion of a few Build Two requirements. Government testing of Build One resulted in a nominal number of Software Test Action Reports (STARS) as reflected in the Technical Report dated 9 April 1996. Build Two was initially completed and shipped to AFSPC/SCZ on 11 April 1996 along with the

draft final SPT 3.0 User's Manual. The bulk of the STARS received for Build Two were not received until late July and early August. A total of 51 STARS were received for Build Two, with the majority of them related to the user interface, addressing consistency and user preferences. Most of these were resolved by telephone with Mr. Mike Bordick from SCZ. The remainder of the anomalies were corrected and a final version of SPT 3.0 was shipped on 20 August 1996, along with the final User's Manual. Only one known problem was unresolved by the time funds were exhausted, which was concerned with the footprint overlay. For some large footprints, typically over a quarter of a hemisphere in size, the footprint is incorrectly drawn or filled on a Polar map. This problem was deeply rooted in the overlay code of SPT 2.0 and could not be resolved with available remaining contract funds. This issue was communicated to the SCZ contact.

2.2 TASK TWO - C2/PROTECT SUPPORT

There were seven tasks which comprised the C2/Protect effort for USSPACECOM and AFSPACECOM. The tasks included analysis of the state of operations security and information warfare vulnerability for above organizations, analysis in support of a formal risk analysis, implementation of a Riskwatch analysis, C2Protect exercise and training support, C2/Protect education and training support and development of departmental policies, regulations and guidelines. A summary of accomplishments follows:

- A master schedule was developed for the project and submitted in September 1995.
- OPSEC/IW briefings were developed and given at START SMART and SAMBOC courses. The briefings were consistently rated extremely high. Other briefings were developed and presented to senior officers from SOMSPACEAF, COMNAVSPACE, Joint Staff J38 and SMSC/CV.
- OPSEC/IW-Protect was integrated into numerous exercise scenarios.
- Critical Information Lists (CILs) were developed for members of the commands.
- Web Information warfare home pages were developed for the 21st Net Defensive and USSPACECOM.
- Numerous COMSEC monitoring and Red Team efforts were scheduled and coordinated.
- Anti-terrorism assessments were conducted for AFSPC.
- OPSEC training was integrated into the JMETL process.
- Extensive policy reviews and interaction on policy issues with other CINCs, Components and national agencies were performed.
- Various documents were reviewed and commented on, including the ARSPACE C2 Protect Manual.
- Various aspects of risk analysis utilizing the Riskwatch analysis tool were performed for CMOC, Cheyenne Mountain and AFSPC/DOX. This effort was plagued with numerous problems as discussed below in Section 3.0.

- Coordinated, hosted and participated in an OPSEC Day for USSPACECOM in August.

The above efforts culminated in the receipt by USSPACECOM of the National Organizational OPSEC Award in June, 1996.

3.0 LESSON LEARNED

The choice of the Riskwatch software for risk evaluation turned out to be a poor one, for two basic reasons. The first reason was maturity of the software. There were several problems that occurred over time with operation of the software. Although the company was very supportive to resolve problems, problems continued to surface. The transition from a DOS to a Windows version just compounded the issue. The first release of the Riskwatch software was more of a beta version than a final version. The other reason was that the underlying risk analysis model that Riskwatch was based upon was an evaluation of risk based upon potential financial considerations of both the value of what would be lost as well as the cost to replace the loss or compromise of those assets. The problem here was that the organizations which we were trying to use Riskwatch to evaluate did not typically 'value' their data and information that they protect. Without a dollar value to assess risk with Riskwatch did not have great utility.

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